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Notes on and Redescriptions of Megathymus yuccae (Boisduval & LeConte) and Its Subspecies (Lepidoptera, Rhopalocera, Hesperioidea).

By H. A. FREEMAN, White Deer, Texas.

MEGATHYMUS YUCCAE (Boisduval & LeConte)

♂. Upper surface. Primaries: Deep umber brown, with the base of the wings rather heavily tinted with dark yellow. The three subapical spots are yellowish-white. There is a subquadrate, deep yellow spot in the distal end of the cell and three dots just above this of the same color. Two yellowish-white spots, one out of line, below the subapical spots, nearer the outer margin. Three, deep yellow, submarginal spots. Secondaries: Deep umber brown, with the base of the wings tinted with dark yellow. There is a deep yellow marginal border that varies from 2–3 mm. in width.

Under surface. Primaries: Light, warm brown, with the outer margins grey. The spots reappear and are lighter in coloration. Secondaries: Dark greyish-brown, with the outer margins and costal area grey. Below the costal margin there is a white crescentic spot and in a few cases a thin white dot. Expanse. 55–66 mm., average 60 mm.

♀. Similar to the male except the spots are a little darker yellow and there is a discal row of three to four deep yellow spots on the upper surface of the secondaries. Expanse. 60–78 mm., average 72 mm.

Typical *yuccae* occurs from South Carolina to the southern tip of Florida during the months of March, April and early May.

MEGATHYMUS YUCCAE COLORADENSIS Riley

♂. Upper surface. Primaries: Dark reddish-brown, with some light yellow hairs toward the base. Two light yellow spots near the costa. Three white subapical spots. Two yellowish-white spots below the subapical ones, out of line nearer the outer margin. Three yellow spots in nearly a straight line toward the outer margin of the wing. Secondaries: Dark reddish-brown, with some yellowish hairs at the base. There is a rather broad marginal border of light yellow. Fringe nearly white and not checkered with darker hairs.

Under surface. Primaries: Warm brown, with the spots reappearing and being somewhat lighter in color. Secondaries: Warm brown near the base, getting lighter grey toward the anal angle and outer margin. There is a costal band of greyish-white scales and just below this there are two somewhat crescentic shaped white spots. In the basal area there is a dark spot with a white pupil and another similar spot toward the outer margin.

Body. Dark brown above, somewhat lighter beneath. Expanse. 46–52 mm., average 50 mm.

♀. Upper surface. Primaries: Dark brown, with a few yellowish hairs at the base. The spots are similar to those found in the male only slightly larger. Secondaries: Dark brown, with a few yellowish hairs at the base. There are four yellow discal spots present and a very narrow yellow marginal border. The fringe is slightly checkered.

Under surface. Primaries: Brown, with the spots reappearing and being somewhat lighter in color. Secondaries: Warm brown, getting slightly lighter toward the outer margin caused by the presence of some scattered grey scales. There is a faintly lighter costal band of grey scales and just below this two clear white spots, one crescentic shaped and the other an irregularly shaped blotch. Toward the outer margin there is another white spot surrounded by darker scales.

Body. Dark brown above, beneath somewhat lighter. Expanse. 50–60 mm., average 53 mm.

The wing shape of *coloradensis* is considerably different from typical *yuccae,* being narrower. The spots are much lighter

yellow. There are two or three white spots below the costal margin on the under surface of the secondaries.

The subspecies *coloradensis* occurs in Colorado and Utah during April, May and June.

MEGATHYMUS YUCCAE NAVAJO Skinner

♂. Upper surface. Primaries: Black, with the usual three subapical spots, the cell spot and five marginal spots very light cream colored and in many cases white. The base of the wings are not tinted with the light color or else it is very slightly indicated. Secondaries: Black, with a rather broad grey marginal border varying in width from 2–3.5 mm.

Under surface. Primaries: Greyish-black, with the spots a little lighter than above. Secondaries: Greyish-black, with the outer margins and costal margin grey. There are two crescentic white spots below the costal margin.

Body. Black above, greyish beneath. Expanse. 43–55 mm., average 53 mm.

♀. Similar to the male except the spots are larger on the primaries and slightly yellower and there is a discal row of three or four light yellow spots on the upper surface of the secondaries.

Expanse. 55–60 mm., average 58 mm.

Navajo is the subspecies that occurs in New Mexico, Arizona and California during March, April and May. It differs from typical *yuccae* and *coloradensis* by having black instead of brown wings and by having the spots much lighter in color, being nearer white than yellow. The wing shape is similar to *coloradensis* as they are narrower than in typical *yuccae*.

MEGATHYMUS YUCCAE ALABAMAE Freeman

♂. Upper surface. Primaries: Black, with the base of the wings slightly tinted with light yellow. The usual spots are light yellow and are fairly broad. Secondaries: Black, with a very few light yellow hairs and scales at the base of the wings. There is a light yellow marginal border with some grey scales intermixed.

Under surface. Primaries: Black, with the outer margins slightly grey. The spots reappear and are somewhat lighter.

Secondaries: Greyish-black, with the outer margins and costal margin grey. There is a single crescentic white spot below the costal margin.

Body. Black above, greyish beneath. Expanse. 50–56 mm.

♀. Unknown.

Alabamae is the subspecies that occurs in Alabama and parts of Georgia during April. It differs from *coloradensis* and *navajo* by having only a single crescentic white spot on the under surface of the secondaries and by having typical *yuccae* wing shape; and from *yuccae* in having the wings black instead of brown and by having the spots light yellow instead of deep yellow. It is also somewhat smaller than typical *yuccae*.

Megathymus yuccae stallingsi new subspecies

♂. Upper surface. Primaries: Deep black, with the base of the wings tinted with bright lemon yellow scales and hairs. Three yellowish-white subapical spots, five marginal spots, two of which are out of line with the subapical ones being nearer the outer margin and are lemon yellow in color, the remaining three marginal spots are larger and bright lemon yellow in color, extending from vein M_3 to vein 2nd.A. Fringe checkered, lemon yellow and black. Secondaries: Deep black, with the base of the wings tinted with lemon yellow hairs and scales. There is a rather broad, bright lemon yellow, marginal border that varies in width from 1.5–3 mm. Fringe varies from lemon yellow to white, some show faint checkering.

Under surface. Primaries: Black, with the outer margin slightly greyish. The spots reappear and are nearly the same color as above. Secondaries: Black over the discal and basal areas, remainder being grey. There is a broad greyish-white costal margin with two crescentic white spots below it. One male had an extra white spot near the outer margin of the wing.

Body. Black above, lighter beneath. Expanse. 35–60 mm., average 55 mm.

♀. Upper surface. Primaries: Deep black, with the base of the wings tinted with deep yellow scales and hairs. The usual spots are present and are much broader than in the males and

their color is also of a deeper yellow. Secondaries: Deep black, with the base of the wings slightly tinted with deep yellow hairs and scales. There is a broad lemon yellow marginal border with some grey scales intermixed. There is a discal row of three large yellow spots and some specimens show a large fourth, phantom spot near the anal angle. Fringe is slightly checkered in some cases.

Under surface. Primaries: Deep black, with the outer margin slightly grey. The spots reappear and are about the same color as above. Secondaries: Basal and discal areas black, with the remainder of the wings greyish. There is a grey costal margin, beneath which are two white crescentic spots. There is a faint submesal black line present, and some specimens have an extra white spot near the outer margin of the wing.

Body. Black above, beneath lighter. Expanse. 41–69 mm., average 65 mm.

Described from 87 specimens, 60 ♂♂ and 27 ♀♀. 57 ♂♂ and all 27 ♀♀ were collected in the pupal stage or on the wing by Mr. Don B. and Viola Stallings, Harry and Edith Jenista and Dr. and Mrs. R. C. Turner, of Caldwell, Kansas at the following localities during March and April, 1943: Caldwell, Kansas; Medford, Salt Plains, Wakita, Waynoka, Oklahoma. The following 3 ♂♂ were collected by the author: 1 ♂ Vickery, Dallas County, Texas, April 12, 1938; 1 ♂, Palo Duro Canyon, Texas, April 25, 1942 and 1 ♂, March 21, 1943 at the same locality.

This new subspecies is named for Don B. (Dee) Stallings, Jr. upon whose third birthday the first larvae were discovered in Kansas and Oklahoma.

Holotype. ♂, IV–11–43, Caldwell, KANSAS (Don B. Stallings) and *allotype* ♀, IV–15–43, Caldwell, Kansas (Don B. Stallings) are in the collection of the author. 47 ♂♂ and 17 ♀♀ *paratypes* are in the collection of Stallings and Turner, Caldwell, Kansas and the collection of Harry Jenista, Caldwell, Kansas. One pair will be sent to the Academy of Natural Sciences of Philadelphia, one pair to the United States National Museum, and one pair to the American Museum of Natural History. The other 15 *paratypes* will remain, for the present, in the collection of the author.

Stallingsi differs from typical *yuccae* and its three described subspecies in the following particulars: The wing shape is intermediate between the two western subspecies and the two from the southeast. The wings are darker black than either *navajo* or *alabamae*. The spots are much brighter in color than either *coloradensis* or *alabamae* but not the dark orange-yellow of typical *yuccae*. As to size, *stallingsi* is much larger than *coloradensis*, being nearly as large as typical *yuccae*. There are two well defined crescentic white spots on the under surface of the secondaries thus differing from typical *yuccae* and *alabamae*. The spots composing the discal band of the female are larger than those present in any of the subspecies and in some cases surpassing those found in typical *yuccae*.

Megathymus yuccae stallingsi ♀ form **dee** new form

Upper surface. Primaries: Deep black, with some dark grey hairs and scales at the base of the wing. Two of the specimens show a few yellowish hairs intermixed with the grey ones at the base. Three yellowish-white subapical spots, a large orange-yellow spot at the distal end of the cell, five orange-yellow submarginal spots, the two below the subapical spots are out of line toward the outer margin. Fringe, black. Secondaries: Deep black. One specimen has some yellowish hairs near the base. There is a very narrow greyish-yellow marginal border and a discal band of three or four very small, orange-yellow spots. The fringe is slightly checkered.

Under surface. Primaries: Black, with the outer margins slightly grey. The spots reappear and are almost the same color as above. Secondaries: Discal and basal areas black, with the remainder of the wing grey. There is a grey costal area near the base and beneath this are two crescentic white spots.

Body. Black above, beneath greyish. Expanse. 48–64 mm., average 53 mm.

Described from 9 ♀♀. 8 of these were collected in the pupal stage or on the wing by Mr. Don B. and Viola Stallings, Harry and Edith Jenista and Dr. and Mrs. R. C. Turner of Caldwell, Kansas during March and April of 1943 at the following locali-

ties: Caldwell, Kansas; Medford and Wakita, Oklahoma. One specimen was collected by the author at Lancaster, Dallas County, Texas, IV–19–41.

This new form is named for Don B. (Dee) Stallings, Jr. of Caldwell, Kansas.

Holotype. ♀, IV–12–43, Caldwell, KANSAS (Don B. Stallings) is in the collection of the author. 3 *paratypes* are in the collection of Stallings and Turner of Caldwell, Kansas. One *paratype* will be sent to the Academy of Natural Sciences of Philadelphia, one *paratype* to the United States National Museum, and one *paratype* to the American Museum of Natural History. The remaining 2 *paratypes* are in the collection of the author.

This new form differs from the typical ♀♀ of *stallingsi* in the following particulars: Smaller in size, *dee* averages 53 mm., whereas ♀♀ of *stallingsi* average 65 mm. The ♀♀ of *stallingsi* have a number of yellow scales and hairs at the base of both pairs of wings, whereas these are absent or else very slightly indicated in *dee*. The spots on *dee* are darker yellow than those found on *stallingsi*. The ♀♀ of *stallingsi* have large yellow spots making up the discal band on the upper surface of the secondaries, whereas in *dee* these spots are much smaller, in some cases mere dots. The marginal border on the upper surface of the secondaries of *dee* is much narrower and greyer than that of the ♀♀ of *stallingsi*.

"Bred" or "Reared" and Note on the Blueberry Fruit Fly * (Diptera: Trypetidae)

By EMLEN P. DARLINGTON, New Lisbon, New Jersey

The terms Bred and Reared seem to be used indiscriminately by entomologists. To Breed should signify that you started with controlled copulation and through rearing carried your efforts to successful conclusions. This is exemplified by A. D. Pickett and M. E. Neary, who after arduous efforts succeeded in cross-breeding apple, blueberry and hawthorn flies and ob-

* *Rhagoletis mendax* Curran, 1932.

tained viable adults capable of reproduction. Horticulturists are continually cross-breeding and obtaining new varieties without assuming the creation of a new species. Too often our concept of species is based on variations resulting from artificially created conditions rather than on fundamental differences. To Rear should signify that somewhere after copulation you obtained eggs or larvae naturally created and with food and care succeeded under artificial conditions in obtaining imagos. Obviously the terms are correlative but not synonymous. These brief remarks, making a sharp distinction between breeding and rearing, lead to the threshold of economic entomology.

Having for several years reared and observed the behavior of the blueberry fruit fly both in the insectory and in the field, notes on its peculiarities might be of interest. Unlike the apple fruit fly † it is not shy and quick in motion, but sluggish and stupid. Like others of the genus it spends much time sunning itself on the surface of a leaf. If approached cautiously it will not fly away, just circle under the leaf. Many times I have gone to a bush in the field, advanced my finger slowly and had the fly come from leaf to finger and permit itself to be carried away from the bush and exhibited to those who wished to know what hypnotic influence was being used. They will sip moisture from the foliage but I have never observed them actually feeding either in the cage or in the field, though various baits and lures have been tried. Honey alone had no attraction but the mixture that gave Dr. Pickett such good results—"5% honey with 2% to 3% yeast in equal parts of milk and water," was not tried. The flies prefer thick foliage and if this protection is accompanied by an abundance of fruit in which to oviposit they show little inclination to leave this habitat. Those interested in the flight of this little fly into economic prominence should refer to the literature cited.

Pickett, A. D. and Neary, M. E. Further studies on Rhagoletis pomonella. *Scientific Agric.*, Quebec, xx, (10), pp. 551–556, 1940.

Pickett, A. D. Studies on the genus Rhagoletis with special reference to Rhagoletis pomonella. *Can. Jour. of Research,* xv, D, pp. 53–75, 1937.

† *Rhagoletis pomonella* (Walsh, 1868).

Lathrop, F. H. and Nickels, C. B. The Biology and Control of the blueberry maggot in Washington County, Me. *Tech. Bull. 275, U. S. Depart. of Agric.*, 76 pp., 1932.

Beckwith, C. S. and Doehlert, C. A. Control of Rhagoletis pomonella in cultivated blueberry fields. *Jour. Econ. Ent.*, xxx, pp. 294–297, 1937.

Curran, C. H. New N. Amer. Diptera, etc. *Amer. Mus. Novitates*, No. 526, May 21, 1932.

IN RETROSPECT

(Continued from page 166.)

In the July issue of this journal, there was given an account of the beginning of the NEWS. At this time we will give some of the milestones in its continued life.

For the year 1891, the Joint Committee, in charge of the journal, reported that volume two contained 220 pages, an average of twenty-two per month, with a plate in each number. There was no lack of papers for publication; on the contrary, it was found that the number of pages (20) authorized for each number, was quite insufficient for the amount of material offered. The edition printed was 500 copies, and the subscription list numbered 426 copies. The writer well remembers the many evenings his father spent at home, after all day at his business office, writing by hand addresses on these more than 400 envelopes for each of the ten monthly issues. Later he set the addresses in rubber type and stamped the envelopes. It was such energy and love of entomology by all those actively interested in the NEWS, that helped to carry the journal through the many trials in its life. As in fact it was freely predicted by some of the early subscribers, that the NEWS would not last six months. The report continues: "Altogether, the year has been a successful one, and Entomological News may now be considered as well established. The Editor and his advisory committee, are to be congratulated on the satisfactory manner in which the journal has been conducted during the year and, as it is right that they should be encouraged in their endeavors for success and progress, your Committee would offer for your consideration and affirmation the following suggestions: That

Entomological News be continued another year and that the edition be increased to 550 copies; that the number of pages to each number be increased to twenty-four; that the Publication Committee of the Society appropriate out of the funds of the Publication Committee to meet any deficite that may occur in the publication of the volume for 1892. It should be stated here, that although $100 was appropriated last year to meet any deficiency on account of the present volume, none was required, [several members and friends of the NEWS made generous contributions which took care of this matter]; that the sum of $100 be appropriated out of the funds of the Publication Committee, to pay, if necessary, for one plate in each number for 1892. Only a portion of this amount may be used, as nearly all the plates in the present volume were donated, and cost merely the paper and printing."

In 1897 the Section and the Society considered the infant had successfully completed its nursery period, having grown to 352 pages, 15 plates and a circulation of 550 copies. Therefore its management was placed entirely in the capable hands of Dr. Henry Skinner and Dr. Philip P. Calvert; and under these editors, and a helpful Advisory Committee, the NEWS continued to grow, reaching its maximum with volume nineteen (1908), containing 510 pages and 25 plates; and became one of America's outstanding entomological journals. The cost of printing so many pages, which the circulation and subscription price were unable to sustain, compelled the editors to increase the latter to two dollars, beginning with volume twenty (1909).

On October 12, 1910, E. T. Cresson received a letter from Dr. Skinner, which was read at the meeting of the Joint Committee stating: "I hereby tender my resignation as editor of Entomological News to take effect December fifteenth 1910. At that time, if I am alive, I will have served twenty-one years as editor of the journal, and the NEWS may be considered to be of age and over the nursing period. I will still have a warm interest in its welfare and will do what I can to make its future a success." This resignation was accepted, but he was appointed Editor Emeritus, with Dr. Calvert, Editor and Ezra T.

Cresson, Jr., Associate Editor. Under these editors, with the assistance of an able Advisory Committee and the continued backing of the American Entomological Society, and the support of its loyal subscribers, the journal maintained its place in American entomology.

For the next seven years the NEWS continued its subscription price of two dollars, but adverse conditions resulting from the First World War affecting costs of labor and materials, compelled the editors to drop the pagination to 30 pages per number and eliminate illustrations except those paid for by the contributors. However, papers for publication continued to come in, and because of the reduced pagination, many had to wait several months for their appearance. In the endeavor to remedy this condition, the subscription price was raised to $2.50 in the hope that this would allow for more pages. Unhappily this anticipation was not realized, as the costs of printing and paper continued to mount. However, the editors did manage to add two more pages to each number, and expressed the "hope that all our subscribers will remain with us and help us as they have done in the past." This increase did not improve the situation, for we find in the editorial of January 1925 under the title "How to meet the rising cost of publication," these statements:

"For years, since the close of the World War, the NEWS has looked forward to a time when the cost of printing and engraving would decline, enabling it to return to something like its prewar condition, in size, illustrations and subscription price. These hopes, alas, have not been realized. On the contrary, the cost of manufacture for 1925 is greater than for 1924 and we must meet the situation as best we can. The subscription price for 1925 will not be increased, but it must be raised for 1926, or the size of the journal very greatly reduced. The latter plan would deprive you of reading matter and would meet with disfavor by authors who even now find it difficult to have their papers published with any degree of promptness. In favor of an increase of the subscription are the present relatively lower price of the NEWS, as compared with most American entomological journals, and the monthly classified list of the latest literature in our science from all parts of the world, a feature possessed by no other similar periodical. We shall be glad to hear from our subscribers as to the best way in which these problems of publication and finance can be solved.

In the March issue of the same year, the questions were asked: What shall be done with the NEWS? Do you want a smaller journal or are you willing to pay more for a larger one? The little response received to these questions was in favor of larger pagination, so the editors decided to increase the subscription price to $3.00, hoping that this would allow the hope-for increase in the number of pages. Again this effort failed to remedy the situation, as the decrease in the number of subscribers, which always accompanied an increase in price, did not meet the additional expenses of publication. It now became evident that some means be found to meet the cost of publication other than by increasing the subscription price or reducing the pagination. This was accomplished, by changes in the procedure in editing and printing and by eliminating the different color (pink) of the cover. The savings thus secured and the gradual increase in the number of subscribers, has resulted in gradually diminishing the deficit until finally the journal again has become self-supporting.

Through two of the Country's wars the NEWS has survived. Now it faces another, a time of greater stress. Of those who nursed it, guided it, through adolescence, and assisted it in maturity, some have passed over the bar, and those who are left are approaching the shore. They need to see that capable, younger hands have control, and with these there is good prospects that the NEWS will weather the present storm.—E. T. Cresson, Jr.

Some New North American Pipunculidae (Diptera).

By William F. Rapp, Jr., Chatham, New Jersey.

Descriptions of several new species of Pipunculidae are presented herewith. I am indebted to Mr. E. T. Cresson, of the Academy of Natural Sciences of Philadelphia for allowing me to compare my specimens with material in the collection under his care. All the types will be placed in the collection of the Academy of Natural Sciences of Philadelphia.

Allomethus mysticus n. sp.

This species differs from *flavicornis* Williston in that the abdomen has black markings and the legs lack spines.

Female. Eyes not contiguous, front shining black, face silvery. Second segment of antennae brownish, third silvery with black arista. The thorax is shining black. Abdomen brownish-orange with black markings on the dorsum. Ovipositor same color as abdomen. Legs yellow; no conspicuous spines. Wings nearly hyaline. Length, 3.0 mm.; wings, 4 mm.

Holotype.—female; St. Placide, QUEBEC, Canada; August 17, 1934.

Allomethus oleous n. sp.

This species is near *willistonii* Kertesz and *flavicornis* Williston, but differs in the color of the abdomen, the legs are more of a brownish-yellow, and the eyes touch each other.

Male. Front and face silvery, eyes touch each other at top of head. Second joint of antennae black. Mesonotum brown; pleurae grayish; postnotum silvery. Abdomen opaque, grayish-brown. Halters yellowish. Femur mostly black, yellow on the lower end; tibia mostly yellow with some black; tarsus yellow, with black edges. Wings hyaline. Length 3.5 mm.; wing, 5.0 mm.

Female. The female is the same as the male. The brown ovipositor has a wide base and is sharply pointed and twice as long as the width of the base. Length 3.0 mm.; wing, 4.0 mm.

Holotype.—male; parasite in *Colladonus mendicus* (Balt) taken on Creek nettle, *Urteca gracilis* v. *holosoucea* Jepson, at Canyon of the Montara Mountain, near Montara, CALIFORNIA, October 27, 1942, (H. H. Severin). *Allotype.*—female; same data as holotype. *Paratype.*—one male; same data as the holotype.

Pipunculus nudus n. sp.

This species is closely related to *allbofasciatus* Hough and it may be a geographical subspecies, but until more is known regarding the distribution it has been thought best to give it the rank of a species.

Male. Front and face silvery. Eyes almost, but not quite contiguous at top of head. Antennae black, except for third joint which is silvery. Thorax black, with a slight brownish cast on the dorsum. Halteres white. Abdomen broad, dull black, with first segment narrow and the rest of equal width. Femur black, except where it connects with tibia and here it is yellow; tibia black except upper part which is yellow; tarsi yellow. Wings hyaline. Length, 3.0 mm.; wings, 2.75 mm.

Female. Similar. Ovipositor slender, but long, yellow. Wings hyaline. Length: body 2.5 mm., wing, 2.5 mm.

Holotype.—male; La Trappe, QUEBEC, Canada; August 8, 1935; (J. Ouellet). *Allotype.*—female; La Trappe, QUEBEC, Canada; July 20, 1935; (J. Ouellet). *Paratypes.*—one male, Montreal, QUEBEC, Canada, June 17, 1934, (J. Ouellet) and one female, La Trappe, August 28, 1934, (J. Ouellet).

Pipunculus nudus tangomus n. var.

This variety conforms structurally to ***nudus***. It differs from the typical variety in that the eyes are contiguous above the antennae. The abdomen is more shining than in ***nudus***.

Holotype.—male; Rigaud, QUEBEC, Canada; July 21, 1941, (J. Ouellet). *Paratypes.*—three males from the following QUEBEC localities: St. Placide, August 30, 1934, La Trappe, July 11, 20, 1935, (J. Ouellet).

Collecting Beetles (Trox) with Feather Bait Traps (Coleoptera; Scarabaeidae).

By WILLIAM SPECTOR, Brooklyn, New York.

The notion of using feathers as a bait for beetles occurred to me as the result of the discovery of a large colony of *Trox scaber,* in addition to many other insects, in a rotten burlap bag of chicken feathers, heads and entrails. The bag had been flung on a vacant field near my home in Brooklyn and had lain there about three months. The burlap in contact with the ground had rotted away; the feathers now lay directly on the ground.

A superficial examination of the contents revealed a large number of chicken skulls and a considerable amount of partially digested corn grains, the latter presumably from the crops of the birds. It was a hot day in August and the bag was teeming with insect life. Very carefully everything was replaced.

The next day I returned with some collecting apparatus, of which more later. With great eagerness I then proceeded to explore the contents of the bag.

On a stout piece of brown wrapping paper which was laid on the ground I began to shake out what proved to be an entomological bonanza. There were staphylinids which scurried off as quickly as they hit the paper; histerids which lay quietly for a minute, only to start their scratchy lumbering movements over the smooth surface of the paper; tiny clambids which were black specks hardly discernible from the debris with which they fell and which could be distinguished as beetles only when they moved; trogids which dropped like pellets and obligingly lay still until the forceps had first captured their more nimble neighbors; corynetids which flew off in a flash of color; mites by the thousand; flies, sow bugs, nitidulids, Aphodiini, ground beetles —even a few small mice made their sudden appearance in a dash for safety.

A final tally revealed that I had captured 2726 beetles in this bag of chicken refuse. There were 784 specimens of *Trox* representing six different species, and along with these 1942 other beetles representing 36 species in nine different families. This is a large catch for any type of trap. It led me to use the method deliberately.

The first opportunity to bait for Trogidae with feathers came about ten months later, in June 1941. I chose as my hunting grounds the wooded region around the town of South Fallsburg, New York, a small community nestled in the Catskills, roughly about 100 miles northwest of New York City and having an elevation of 1400 feet. There were thick pine groves, open fields of hay, a small dammed-up lake from which flowed a tiny brook, and, hidden in a dense wood, the rat-and-crow infested village dump which looked very promising. Not far away was a wide shallow river. The spot chosen for the first bait-trap

was in a pine grove through which ran the tiny brook. But before going into details it would be best to mention some of the habits of Trogidae and to explain the technique use in collecting from feathers.

It is the habit of Trogidae when disturbed to lie perfectly still for several minutes, feigning death. It is interesting to see how well these torpid beetles escape detection by merely lying still, providing, of course, that the background is of the same color. The crust of dirt which covers them is so much like the color of earth that it is difficult to see them on the ground. Sometimes they look like pebbles or small pieces of dried mud, that is, until they move.

Although most beetles can be seen more readily against the background of a white cloth, it is much easier to collect the small specimens commonly found in feathers from the smooth surface of a piece of stiff, light-colored wrapping paper. Many beetles found it difficult to get a footing on the paper, and when there are several dozen of them crawling about, any means by which they can be prevented from using their maximum speed will aid in getting more of them into the killing bottle. Cloth wrinkles, hence the forceps often pick up cloth as well as beetle. Moreover, the cloth will take on the contours of the ground which it covers, sometimes allowing the specimens to remain hidden in depressions.

Captured beetles were placed directly in alcohol. By using this as the killing agent, rather than the cyanide bottle, it was possible to keep the bottle open for hours at a time instead of having to remove the cork every time a beetle was taken. If some sort of separation is attempted while collecting, a good deal of time (sometimes equal to the time spent collecting the beetles) will be saved when sorting them later. Several small vials of alcohol were used, each of which was intended for a major group of beetles. Thus, one vial was reserved for Staphylinidae, one for *Saprinus*, another for the tiny Clambidae which are generally difficult to find again when put in with other beetles, etc.

For separating the beetles from the feathers, a sieve, the kind commonly used to sift ashes from coal, was employed. A

small quantity of feathers was placed into the sieve and shaken, gently at first, over the paper (it is inconvenient to have too many insects drop out each time the collecting begins). When shaking could no longer dislodge the few beetles which remained among the feathers in the sieve, a stick was used to rub the feathers against the wire mesh. This generally accounted for the remainder. Two small garden trowels were used to handle the feathers, and later, to dig beetles out of the ground whenever present.

The first bait "trap" consisted of a corrugated paper carton which held about two cubic feet of feathers. It was placed in a small pine wood, the floor of which was covered with a dense carpet of humus and old leaves. The open box was laid on its side so that some of the feathers were forced out upon the open flaps by the pressure inside.

I did not expect too much from this initial attempt since the carton contained only feathers. Its potency was not to be compared with the Brooklyn bag in which meat scraps had supported a culture of insects. I use this term advisedly, for what in fact had taken place in the bag was that the few original beetles which had been attracted to the bag had remained, fed upon the remains of the chicken and upon eath other and had multiplied in great numbers. The presence of beetle larvae in great numbers in and under the bag suggests this.

When, after ten days, I returned, the "trap" was a soggy mass of feathers and soaked paper. There had been a heavy rainfall and the carton, which had absorbed water, had fallen apart at the seams. A piece of paper was spread beside the feathers and the examination carefully begun. There were very few beetles in the bag notwithstanding the presence of a few histerids and aphodiids, and it looked like a failure until the bottommost layer was reached. There were the trogids, 63 specimens of *Trox* representing four species.

Although the results were satisfactory, a comparison indicated that the Brooklyn bag had contained a greater number of species. This was probably due to the presence of the meat scraps in the first trap. It was thought that if some of the scraps were added to the feathers in a second "trap" the

staphylinids, histerids, etc., which were wanted would be attracted and that it might also help to bring trogids from greater distances. If a quantity of entrails were placed in the center of the mass of feathers then, in effect, the container would hold a large dead bird, the body being represented by the intestines and the plumage by the feathers.

A bushel apple basket was used as the container for the feathers this time. It was left uncovered and beetles could reach the feathers from the top, or from the narrow ventilating slits along the sides. The poultry dealer permitted me to help myself to as much of the chicken entrails and unwanted scraps as I needed. Four pounds of this were placed in the center of the mass of feathers.

A large flat rock, two-hundred feet away from the village dump, was chosen. It seemed an ideal locality for the beetles I wanted; the stench which permeated the air gave promise of beetles commonly associated with carrion. The dump, over which hung a pall of smoke, the result of an ineffectual attempt to destroy the huge mound of putrefaction by fire, was hidden away in a dense wood. An incessant buzzing from myriads of flies which covered patches of the ground in the clearing, could be heard from a distance of fifty feet.

A visit was made to the basket after a week. The entrails had completely disappeared; in their place was a large number of empty puparia, evidence that flesh flies had been the scavengers. No disagreeable odors emanated from the feathers as the examination was begun.

Many small silphids and staphylinids began to run from the basket as soon as it was moved. These swift runners were taken care of by placing the basket on a large piece of wrapping paper and collected as they scrambled over the smooth surface. The basket contained a greater variety of beetles than had the Brooklyn bag, but not so many specimens. There were terrestrial Hydrophylidae, Nitidulidae, Histeridae, Scaphidiidae, Cryptophagidae, Ptiliidae, Anthicidae, Carabidae, Dermestidae, Aphodiini, *Dialytes* and Trogidae. This time there were 146 specimens of *Trox,* including 22 specimens of the rare *T. aequalis.*

The basket was replenished with more entrails and placed closer to the dump. Each visit netted a few mort trogids until the middle of July after which none of the traps that I set out in various localities yielded any *Trox*.

Eighteen baskets were set up in various localities in such a manner as to take advantage of all possible haunts of the trogids. These were scattered in a twenty square-mile area, at intervals along a river, in dense woods, open fields, etc. A few baskets which contained no meat were put out also. Trogids showed a preference generally for the baskets which contained meat although both types gave satisfactory results. In some places, *Geotrupes semiopacus* and *G. splendidus* were found in numbers, generally under the baskets. A heap of chicken heads and feathers, which was placed upon a large flat rock and visited the next day, attracted thirty-five specimens of *G. semiopacus* and a specimen of *Scaphinotus viduus,* the latter under a small stone which was resting on the rock. Another dump from a town six miles away yielded a fine series of *Trox aequalis* in addition to many *T. unistriatus*. Histerids were taken in numbers in every case.

Trogidae can best be captured with feathers during June and July after which none are to be seen excepting when one stumbles upon a colony which has been established. I presume they can be baited for earlier in the southern states.

A New Membracid Genus from Peru (Homoptera).

By W. D. FUNKHOUSER, Lexington, Kentucky.

A new genus of the family Membracidae (Homoptera) from Peru is here described with its type species as follows:

Genus **Thuris** gen. nov.

This genus belongs in the subfamily *Centrotinae* Spinola and the tribe *Acuminatini* Goding and in taxonomic position stands between the genera *Lycoderes* Germar and *Stegaspis* Germar. It should be placed in a systematic key as follows:

a. Pronotum with an elevated anterior bilobed or dilated process ..... *Lycoderes* Germar

aa. Pronotum without an elevated anterior process

b. Pronotum with alternate swellings and thin translucent plates ..... *Thuris* gen. nov.

bb. Pronotum smooth, compressed and leaflike *Stegaspis* Germar

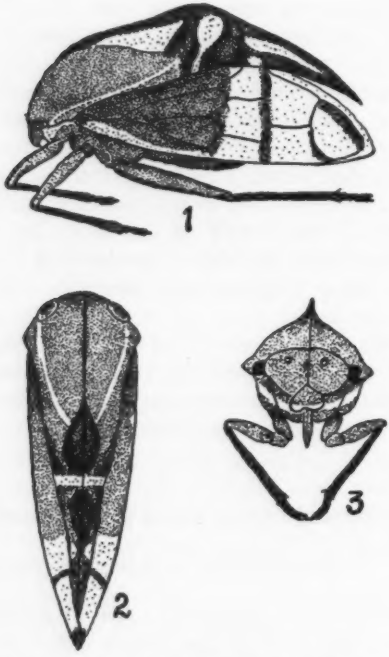

Fig. 1. *Thuris fenestratus* sp. nov. Lateral view. Fig. 2. Dorsal view. Fig. 3. Frontal view.

Scutellum present but concealed beneath pronotum; venation of tegmina not reticulate; corium with five apical cells; tibiae slightly dilated; pronotum elevated, bilaterally compressed, with rounded swellings and thin translucent areas between and on each side of swellings; tegmina entirely free, largely opaque and marked with heavy areas of color; hind wings very small and hyaline; posterior process well developed, long and tectiform; reaching almost to apices of tegmina; femora and tarsi normal.

GENOTYPE: *Thuris fenestratus* sp. nov.

Thuris fenestratus sp. nov.

Bright reddish-brown marked with dark brown and yellow; finely punctate, not pubescent; pronotum bilaterally compressed, with alternate swellings and thin transparent areas; posterior process strong, tectiform, acute, reaching almost to tips of tegmina; scutellum concealed beneath pronotum; tegmina entirely exposed, largely opaque, broadly marked with brown; under wings very short and hyaline; femora and tarsi normal, tibiae somewhat flattened.

Head reddish-brown, finely punctate, not pubescent, subovate, wider than long; base strongly arcuate and weakly sinuate; eyes dark brown; ocelli conspicuous, amber-colored, farther from each other than from the eyes and situated above a line drawn through centers of eyes; inferior margins of genae short and sinuate; clypeus wider than long, extending only slightly below inferior margins of genae, tip broadly truncate and notched and edged with bright yellow.

Pronotum expanded into a flattened dorsal plate, a lateral swelling just before middle on each side and another just behind middle, between these swellings a thin transparent window, another transparent area just in front of anterior swelling and one behind the posterior swelling extending down the center of the posterior process; metopidium sloping, broader than high, regularly convex; humeral angles weak and rounded; median carina strongly and sharply percurrent; posterior process strong, sharp, laterally flattened, central area translucent, tip

reaching almost to tips of tegmina; scutellum present but concealed under pronotum; a narrow bright yellow band extending from eye to anterior swelling of pronotum, a yellow line extending from central window to margin of pronotum, a yellow spot on each side at base of posterior process.

Tegmina entirely exposed; basal half opaque; veins difficult to distinguish because of heavy pigmentation; base narrowly coriaceous and punctate; basal half dark reddish brown; apical half hyaline with a broad transverse reddish-brown stripe across center and a brown patch on apical margin; five apical and two discoidal cells; apical limbus broad; hind wings very short, hyaline, apical cell petiolate.

Sides of thorax brown with a broad yellow band next to the head. Undersurface reddish-brown. Femora cylindrical and brown. Tibiae weakly dilated and black. Tarsi and claws black.

Length from front of head to tips of tegmina 5.1 mm.; width between humeral angles 1.8 mm.

Type.—female; San Martin, PERU.

Described from three females and five males, all collected at the type locality by Mr. Felix Woykowski in August 1936. *Holotype, allotype* and six *paratypes* in author's collection.

Notes on Mosquitoes of Missouri (Diptera: Culicidae).

By C. F. ADAMS and WM. M. GORDON.

The interest that has been aroused in recent years in regard to mosquitoes as vectors of various diseases justifies putting on record the results of work done by the authors in this State. The outstanding epidemic of encephalitis in the St. Louis area, and the fact that other mosquito-borne diseases, such as malaria, occur all over Missouri, lend heavily to the necessity of making known the distribution and seasonal incidence of the various species of this group.

There are several military camps of considerable size in Missouri, and these house thousands of soldiers whose health has to be guarded. On the Mississippi River, near St. Louis, is Jefferson Barracks; near the center of the State is Fort Leonard Wood; down in the southwest are Camp Crowder and Camp Clark; near the towns of Knobnoster, Columbia, Vichey, Sikeston, and Malden are aviation enterprises of various sorts; and immediately across the Missouri River in Kansas is Fort Leavenworth. All of these places are subject to mosquito infestation, and the present notes are published with the hope they will be of service to anyone engaged in mosquito control work in this part of the country.

Thirty species are listed, although one of them—*Aëdes dorsalis* (Meig.)—was taken in Illinois just across the Mississippi River from Jefferson Barracks.

Some of this material has been through the hands of the late Dr. Dyar, and of Dr. Alan Stone, to both of whom we are very grateful.

ANOPHELES QUADRIMACULATUS Say. Valley Park, Sept. 10, 16; Shrewsbury, June 27, August 6, 13, 15; Jennings, August 13; Black Jack, July 23; Fenton, July 10, 14; Allenton, July 27; Florissant, Sept. 16; Jefferson Barracks, June 21; Atherton, July; Sikeston, Sept. 12; Jefferson City, June 18, 21, 25, Oct. 19; Old Monroe, Sept. 27; Wicks, July 17.

ANOPHELES PUNCTIPENNIS (Say). Fenton, Sept. 7, 10; Kirkwood, June 27, August 9; Olivette, June 25; Jennings, June 7; Shrewsbury, August 15; Valley Park, Sept. 10; Black Jack, July 23; Pine Lawn, May 30; Normandy, May 30; Lemay, July 13; Jefferson Barracks, June 20; Columbia, August 22; Sikeston, Sept. 12; Atherton, July.

PSOROPHORA CILIATA (Fabr.). Lemay, Sept. 1; Spanish Lake, July 23; Jefferson Barracks, June 23; Sikeston, Sept., Oct.; Atherton, Sept., Oct.

PSOROPHORA COLUMBIAE (D. and K.). Fenton, Sept. 5, 7; Lemay, Sept. 1, 5; Kirkwood, August 9; Bissell, August 9; Atherton, Oct. 3; Old Monroe, Sept. 27; Columbia, August 20; Boonesboro, August 22.

PSOROPHORA CYANESCENS (Coq.). Fenton, Sept. 5; Boonesboro, August 22; Malden, Sept. 1; Atherton, Oct. 1.

PSOROPHORA FEROX (Humb.). Spanish Lake, June 28, July 22, August 25, Sept. 21; Jennings, June 4; Atherton, June.

PSOROPHORA DISCOLOR (Coq.). Lemay, August 9.

PSOROPHORA HOWARDII Coq. Lemay, Sept. 1.

PSOROPHORA HORRIDA (D. and K.). Spanish Lake, June 22; Creve Coeur Lake, July 4; Gumbo, July 4; Wicks, July 17; Columbia, August 20; Acres, July 5.

PSOROPHORA DISCRUCIANS (Walk.). Atherton, August. (Retained by Dyar.)

URANOTAENIA SAPPHIRINA (O. S.). Shrewsbury, August 12, 13; Columbia, August 20; Wicks, July 21; Atherton, July.

AËDES CANADENSIS (Theob.). Ladue, June 9; Jennings, June 4.

AËDES AEGYPTI (Linn.). Jefferson City, Sept. 29, 1941, Sept. 11, 1942, Oct. 18, 1942.

AËDES TRISERIATUS (Say.). Oakville, Sept. 24; Spanish Lake, June 28, July 17, 22; Gumbo, July 4; Lemay, July 10; Jennings, June 4; Shrewsbury, June 30; Bissell, July 12; Columbia, August 20; Atherton, June.

AËDES STICTICUS (Meig.). Creve Coeur Lake, June 28; Spanish Lake, July 4; Wicks, July 17.

AËDES TRIVITTATUS (Coq.). Spanish Lake, June 28, July 21, Sept. 25; Creve Coeur Lake, July 4; Gumbo, July 4; Atherton, June 4.

AËDES DEORALIS (Meig.). Dupo, Illinois June 28. (Four or five miles east across the Mississippi River from Jefferson Barracks, Mo. Found among large numbers of *Aëdes sollicitans* (Walk.).

AËDES SOLLICITANS (Walk.). Jefferson Barracks, May 2, 3; Creve Coeur Lake, July 28; Kimmswick, July 17, 21; Dupo, Illinois June 28, August 28.

AËDES NIGROMACULIS (Ludlow). Atherton, October.

AËDES VEXANS (Meig.). Spanish Lake, Sept. 21; Oakville, Sept. 24; Lemay, Sept. 1, 11; Normandy, June 13; Jennings, August 9; Gumbo, July 4; Jefferson Barracks, June 11, 18, 23,

28; Kirkwood, August 6, 9; Black Jack, July 23; Atherton, October; Old Monroe, Sept. 27; Columbia, August 20; Rockport, August 20.

CULEX APICALIS Adams. University City, June 4; Overland, June 21; Ladue, June 17, Valley Park, June 23, Sept. 18; Atherton, June.

CULEX TARSALIS Coq. Valley Park, Sept. 16, 20; Huntleigh Village, Sept. 5, 7, 10; Columbia, August 22; Atherton, June 22.

CULEX SALINARIUS Coq. Valley Park, Sept. 16; Black Jack, July 23, 27; Jennings, June 7; Bellefontaine, Sept. 10; Pine Lawn, June 7; Fenton, Sept. 7; Olivette, June 21; Overland, June 22; Carsonville, July 22.

CULEX ERRATICUS D. and K. Shrewsbury, June 30, August 6, 12, 13; Webster Groves, Sept. 24; Allenton, July 27; Bissell, July 16; Wicks, July 21.

CULEX PECCATOR D. and K. Oakville, Sept. 24; Shrewsbury, June 30, August 10, 12; Lemay, July 13; Bissell, July 16; Valley Park, Sept. 20.

CULEX QUINQUEFASCIATUS Say. Bellefontaine, Sept. 5, 10; Butler Lake, July 10; Creve Coeur Lake, June 16; Ladue, July 17; Oakville, Sept. 24; Kimmswick, August 15; Atherton, October.

CULEX RESTUANS Theob. Ladue, June 10; Carsonville, July 22; Pine Lawn, June 4; University City, June 4; Wellston, May 30; Black Jack, July 23; Butller Lake, July 10; Kimmswick, August 15; Columbia, August 22; Atherton, June.

CULEX PIPIENS Linn. Ranken, June 29; Bellefontaine, July 22, Sept. 5; Carsonville, July 22; Butler Lake, July 10; Wellston, May 30; Kirkwood, June 17; Rockhill, June 17, Sept. 20; Olivette, June 12; Jefferson Barracks, June 11, 19, 22; Kimmswick, July 17; Columbia, August 22; Atherton, June.

MEGARRHINUS SEPTENTRIONALIS D. and K. Ranken, Sept. 2 (Dr. E. P. Meiners).

THEOBALDIA INORNATA (Will.). Atherton, June.

Current Entomological Literature

COMPILED BY THE EDITORIAL STAFF.

Under the above head it is intended to note papers received at the Academy of Natural Sciences of Philadelphia and the University of Pennsylvania, pertaining to the Entomology of the Americas (North and South), including Arachnida and Myriopoda. Articles irrelevant to American entomology will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species will be recorded.

This list gives references of the current or preceding year unless otherwise noted. Continued papers, with few exceptions, are recorded only at their first installment.

For records of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington. Also Review of Applied Entomology, Series A, London. For records of papers on Medical Entomology, see Review of Applied Entomology, Series B.

NOTE: The figures within brackets [ ] refer to the journal in which the paper appeared, as numbered in the List of Journals given at the end of the literature. The number of the volume, and in some cases, the part, heft, &c. is followed by a colon (:). References to papers containing new forms or names not so stated in titles are followed by (*); if containing keys are followed by (k); papers pertaining exclusively to Neotropical species, and not so indicated in the title, have the symbol (S).

Papers published in ENTOMOLOGICAL NEWS are not listed.

GENERAL—COE, R. L.—Charles Degeer: The correct rendering of his surname. [8] 79: 151–52. DAVIS, W. T.—Two ways of song communication among our North American cicadas. [6] 51: 185–190. FERNALD, H. T.—An insect lodging house. [6] 51: 229–231. GRINNELL & HAWES.—Bibliography on lice and man, with ref. to wartime conditions. [3] Bibl. Bull. 1, 106 pp. HOFFMAN, W. A.—1894–1943. (Obituary) by G. N. Wolcott. [12] 36: 486. KENNICOTT, R.—Kennicott in the North. By Grace L. Nute. [The Beaver, Winnipeg] pt. 274: 28–32, ill. KNOWLTON & STAINS.—Flickers eat injurious insects. [4] 75: 118. MCLAINE, L. S.—The war activities of the Federal divisions of entomology and plant protection since 1939. [29] 73: 7–16. MAYR, E.—Systematics and the origin of species. N. Y. 1942. Columbia Univ. Press. xiv + 334 pp. 29 figs. METCALF, C. L.—Entomological training for the armed forces (editorial). [12] 36: 482–483. SMITH & KELLY.—The twelfth or 1942 annual insect population summary of Kansas. [103] 16: 99–116. VAN CLEAVE, H. J.—An index to the opinions rendered by the Inter. Commission on Zool. Nomen. [119] 30: 223–40. VOLCK, W. H.—1879–1943. (Obituary by E. O. Essig. [12] 36: 484–486.

ANATOMY, PHYSIOLOGY, ETC.—ALEXANDER, R. S.—Factors controlling firefly luminescence. [Jour. Cell. & Comp. Physiol.] 22: 51–72. BOYD, A. E. W.—Stimulation of larval emergence in Heterodera schachtii by certain concentrations of silver compounds. [20] 30: 161–163. DOUGLAS, J. R.—The internal anatomy of Dermacentor andersoni. [67] 7: 207–72,

ill. HAMMETT & WILSON.—The nuclear reaction to SH of excised salivary gland cells of second and early third instar larvae of Drosophila melanogaster. [Growth] 7: 183–198. HOVANITZ, W.—Hybridization and seasonal segregation in two races of a butterfly occurring together in two localities. [92] 85: 44–51. LAWSON, C. A.—Germarial differences and the production of aphid types. [92] 85: 60–68. MACKENSON, O. —The occurrence of parthenogenetic females in some strains of honey bees. [12] 36: 465. ROY, GHOSH & CHOPRA.—The mode of action of pyrethrum on the cockroach, Periplaneta americana. [20] 30: 42–47. SEVERIN, H. C.—A study of a gynandromorph of Melanoplus mexicanus mexicanus. [6] 51: 179–183, ill. SQUIRE, F. A.—Phototropism in insects,—an indictment of the light-trap method. [22] 34: 113–116. STANLEY, J.—A mathematical theory of the growth of populations of the flour beetle, Tribolium confusum Duv. [84] 24: 323–328. TALBOT, M.—Response of the ant Prenolepis imparis to temperature and humidity changes. [84] 24: 345–352. WHITE, R. T.—Effect of milky disease on Tiphia parasites of Japanese Beetle larvae. [6] 51: 213–218. WULFF, V. J.—Correlation of photochemical events with the action potential of the retina. [Jour. Cell. Comp. Physiol.] 21: 319–326. WULF & JAHN.—Intensity EMF relationships of the electroretinogram of beetles possessing a visual, diurnal rhythm. [Jour. Cell. & Comp. Physiol.] 22: 89–94.

ARACHNIDA AND MYRIOPODA—HEDGPETH, J. W.—Water bears (Targegrada). [Fauna, Phila.] 5: 78–79, ill. MARSHALL, R.—Hydracarina from California. I. [Trans. Am. Microsc. Soc.] 62: 306–24, ill., (*). MULLERRIED, F. K. G.—El primer miriapodo fosil de Mexico, encontrado en el Estado de Puebla. [112] 13: 711–17, ill., (*). MUMA, M. H.—Sexual dimorphism in spiders. [Bull. Nat. Hist. Soc. Maryland] 13: 36–41, ill.

THE SMALLER ORDERS—AUGUSTSON, G. F.—Preliminary records and discussion of some sps. of Siphonaptera from the Pacific northwest. [38] 42: 69–89. A new flea of the genus Ceratophyllus. [Trans. San Diego Soc. Nat. Hist.] 9, no. 4. CHAMBERLAIN, R. W.—Four n. sps. of Collembola. [Great Basin Nat.] 4: 39–48, ill. DE FIGUEIREDO, E. R.—Uma praga seria das orquideas Taeniothrips xanthius. [74] 5: 315–22, ill., 1942. FRASER, F. C.—The function and comparative anatomy of the oreillets in the Odonata. [1107] 18: 50–56, ill. SOMMERMAN, K. M.—Bionomics of Lachesilla nubilis (Corrodentia, Caeciliidae). [4] 75: 99–105. WEBSTER & WEB-

STER.—Influence of water current on case weight in larvae of the caddisfly, Goera calcarata. [4] 75: 105–108. WRIGHT, M.—Dragonflies collected in the vicinity of Florala, Alabama. [39] 26: 30–31.

ORTHOPTERA—HATHAWAY, C. R.—Parthenogenese em Mantodea. [111] 38: 81–83, ill. REHN, J. A. G.—A n. gen. & 2 n. sps. of Hispanolan Pseudophyllinae (Tettigon). [Notulae Nat., Phila.] 125: 14 pp. ill.

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